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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,578	02/27/2004	Andrew P. Nguyen	6601.P046	9132

7590 03/09/2005

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EXAMINER	
TADESSE, YEWEBDAR T	
ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,578

Applicant(s)

NGUYEN, ANDREW P.

Examiner

Yewebdar T Tadesse

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 33-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-32, drawn to a semiconductor processing system, classified in class 118, subclass 52.
 - II. Claims 33-42, drawn to a method, classified in class 427, subclass 240.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to treat discs or glass substrate.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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5. During a telephone conversation with Mark Kupanoff on 02/25/2005 a provisional election was made without traverse to prosecute the invention of I, claims 1-32.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 33-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

6. Claim 8 is objected to because of the following informalities: on lines 2-3, the phrase "no saturated air passes leaves" is grammatically incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claims 19, 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 19, line 2, it's unclear what applicant intended to say by claiming "when the dispense head is in the second fluid dispensed". For the purpose of examination "when the dispense head is in the first position the second fluid dispensed" is assumed. Claim 21 recites the limitation "the chamber" in claim 20. There is insufficient antecedent basis for this limitation in the claim. For the purpose of examination claim 21 is assumed to depend from claim 5.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-5, 18-20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamine (US 6,715,943) in view of Tsukamoto et al (US 5,993,552).

As to claims 1, 3-5, 18-20, and 28, Nagamine discloses (see Fig 6) a semiconductor substrate processing apparatus comprising a frame (15); a substrate support (spin chuck 71) mounted to the frame to support a semiconductor substrate; a dispense head having at least one outlet opening (nozzle 90,91); connected to the frame for movement relative to the semiconductor substrate (W); a solvent bath (washing tanks 98,99) attached to the frame having a reservoir holding a first fluid, a

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casing with a chamber (recessed shaped cross-sections for receiving developing solution supply nozzles), and the dispense head having first and second selected positions (in the first position developing solution dispensed through nozzles and in the second selected position nozzles are kept in the washing tanks). Nagamine lacks teaching a solvent bath having a drain and the formation of the solvent bath such that when the dispense head is in a selected position, a second fluid dispensed from the at least one outlet opening enters the drain and the at least one outlet opening is exposed to the first fluid. Tsukamoto et al discloses (see Figs 15-16) a solvent bath (106) having a drain (108) and the solvent bath is shaped when the dispense head is in a selected position (the resist applying machine is not in use) the second fluid dispensed from the at least one outlet opening (nozzle 104) enters the drain (108) and at least one outlet opening is exposed to the first fluid (solvent supplied through 107). See also Fig 16 for the nozzle 104 inserted into one of the openings of the chambers of the solvent bath 106 casing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a solvent bath having a drain and wherein a second fluid dispensed from the at least one outlet opening enters the drain and the at least one outlet opening is exposed to the first fluid in Nagamine to replace the soaking fluid the reservoir as much as needed preventing contamination of the dispensing head.

As to claim 2, in Nagamine (see columns 8-9, lines 53-67 and 1-23 respectively) the dispense head (nozzles 90, 91) is movable between a first position and a second position relative to the semiconductor substrate.

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12. Claims 6-17, 21-27 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagamine (US 6,715,943) in view of Tsukamoto et al (US 5,993,552) as applied to claims 1, 18 and 28 above, and further in view of JP2001-205162A (see English translated Abstract and detailed description). As to claims 6-8 and 21-23, Nagamine as modified lacks teaching air in the chamber of the solvent bath saturated with evaporated fluid from the reservoir, wherein the nozzle does not contact the first liquid in the reservoir and no saturated air leaving the chamber through the opening in the casing. JP'162 discloses (see Fig 3, English translated abstract) a nozzle cleaning apparatus forming cleaning atmosphere by evaporating cleaning liquid from the reservoir, wherein the nozzle does not contact the cleaning liquid (21) and no saturated air leaving the chamber through the opening in the casing (i.e. seal is formed between the nozzle and the supporting structure of the washing station, see paragraph 15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use air in the chamber of the solvent bath saturated with evaporated fluid from the reservoir, wherein the nozzle does not contact the first liquid in the reservoir and no saturated air leaving the chamber through the opening in the casing to effectively clean the nozzle.

With respect to claims 9-13, 24-27 and 29-32, Nagamine lacks teaching the structure of the washing tank or solvent bath. Although one in the art would design the solvent bath as desired to efficiently conduct the cleaning operation of the dispense head. Tsukamoto et al and JP'162 discloses (see Figs 16 and Fig 3 respectively) a solvent bath with casing comprising a base, side wall, a top piece, wherein the drain

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and the reservoir are attached to the base of the casing, the opening is in the top piece of the casing and the side wall interconnects the base and the top piece, a funnel structure connected to the drain (see Tsukamoto et al's Fig 16), and the reservoir surrounding the funnel structure. It would have been obvious to one of ordinary skill in the art at the time the invention was to construct the solvent bath as claimed in Nagamine as modified to conduct the cleaning operation of the nozzle by evaporating the cleaning liquid as taught in JP'162.

Regarding claims 14-18, in Nagamine the first and second components are liquids or semiconductor processing liquids or first fluid is solvent (water), the second fluid is photoresist (resist, see column 2, line 30 and column 9, line 22), and the first and the second fluid capable of having at least one component in common. Both Tsukamoto et al and JP'162 teaches (see column 9, lines 41-50 and paragraph 1 respectively) these fluids – photoresist and solvents.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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